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College of Agriculture
Agricultural Experiment Station
Berkeley, California

STATISTICAL ANALYSIS OF THE ANNUAL AVERAGE F.O.B. PRICES OF CANNED CLINGSTONE PEACHES, 1924-25 TO 1947-48

by

Sidney Hoos

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Sidney Hoos[1/]

During a number of the years before World War II, the Giannini Foundation of Agricultural Economics issued annually a report presenting the results of statistical analyses of canned clingstone peaches. Those reports were made available for the benefit of the canned peach industry, growers, packers, shippers and purchasers. During the war years, the reports were suspended because of the abnormal conditions which prevailed then, such as federal price control.

In May 1948, the California Agricultural Experiment Station issued two publications on clingstone peaches.[2/] Those publications were made available for the purpose of presenting in general terms the economic trends underlying clingstone peaches, and providing background information on the industry and its economic status. The prewar, wartime, and immediate postwar developments were considered to give a comprehensive basis for the industry's outlook.

This report undertakes to resume the type of statistical analyses of the F.O.B. prices of canned clingstone peaches which were issued in the prewar years, as noted above. With the experience of only two postwar pack-years available now, it is still too early to establish clearly a firm postwar pattern of the statistical relations. Analysis of the available evidence indicates, however, the existence of a pattern which bears some similarity to but also has some characteristics different from the prewar statistical relations. The major difference concerns the effects of consumers' income as reflected by the index of nonagricultural income. In the prewar years, the net relation between the prices and consumers' income was well measured by a straight-line; that is, a change of income from one level had the same effect on price as a change of income from another level within the range of experience. But when the postwar years are included in the analysis, the net relation between the prices and consumers' income is more adequately measured by a curve; that is, the effect which a change of income has on price is influenced by the income level from which the change is considered. In other terms, an increase of 10 points in the income index, if money income is high as in postwar years, is associated with a smaller increase in the price than if the income index increases 10 points in relatively low income years such as the middle 1930's. This relation is noted further below.

Below we present the results of an analysis of the major factors which have influenced the annual average F.O.B. prices received for canned clingstone peaches by canners in California from 1924-25 through 1947-48, but excluding the war years 1941-42--1945-46. The war years were omitted from the analysis because of the reasons noted above.

1/ Associate Professor of Agricultural Economics, Associate Agricultural Economist in the Experiment Station, and Associate Agricultural Economist on the Giannini Foundation.

2/ Sidney Hoos and H. Fisk Phelps. California Clingstone Peaches, Economic Status 1948. Calif. Agr. Exp. Sta. Circ. 385 (May 1948).

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In May 1948, the California Agricultural Experiment Station issued two publications on clingstone peaches.[2] These publications were made available for the purpose of presenting in general terms the economic trends underlying clingstone peaches, and providing background information on the industry and its economic status. The prewar, wartime, and immediate postwar developments were considered to give a comprehensive basis for the industry's outlook.

This report undertakes to resume the type of statistical analyses of the F.O.B. prices of canned clingstone peaches which were issued in the prewar years, as noted above. With the experience of only two postwar pack-years available now, it is still too early to establish clearly a firm postwar pattern of the statistical relations. Analysis of the available evidence indicates, however, the existence of a pattern which bears some similarity to but also has some characteristics different from the prewar statistical relations. The major difference concerns the effects of consumers' income as reflected by the index of nonagricultural income. In the prewar years, the net relation between the prices and consumers' income was well measured by a straight-line; that is, a change of income from one level had the same effect on price as a change of income from another level within the range of experience. But when the postwar years are included in the analysis, the net relation between the prices and consumers' income is more adequately measured by a curve; that is, the effect which a change of income has on price is influenced by the income level from which the change is considered. In other terms, an increase of 10 points in the income index, if money income is high as in postwar years, is associated with a smaller increase in the price than if the income index increases 10 points in relatively low income years such as the middle 1930's. This relation is noted further below.

Below we present the results of an analysis of the major factors which have influenced the annual average F.O.B. prices received for canned clingstone peaches by canners in California from 1924-25 through 1947-48, but excluding the war years 1941-42--1945-46. The war years were omitted from the analysis because of the reasons noted above.

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The average relationships which prevailed from 1924-25 through 1947-48 (excluding 1941-42--1945-46) between the F.O.B. prices of canned clingstone peaches and three major factors were measured. The three factors are (1) total domestic shipments of California canned peaches, including both clingstones and freestones, (2) index of nonagricultural income in the United States, and (3) an adjusted index of prices of competing canned fruits.

Figure 1 shows graphically the average relations between the F.O.B. price and each of the independent variables, as determined by equation No. 4, table 5. Expressed in numerical terms, these average relations are as follows for the period of years under consideration:

(a) A change of one million cases in domestic shipments of canned peaches, with income and competing canned fruit prices held constant, was on the average accompanied by a change in the opposite direction of 14 cents a case in the F.O.B. price of canned clingstone peaches. This relation is shown by the diagonal line in panel A of figure 1.

(b) A change of one-hundreth unit in the logarithm of the index of nonagricultural income in the United States, with domestic shipments and prices of competing canned fruits held constant, was on the average accompanied by a change in the same direction of 9 cents a case in the F.O.B. price. Expressed in other terms, a change of 10 per cent in the level of nonagricultural income in the United States, with domestic shipments and prices of competing fruits held constant, was on the average accompanied by a change in the same direction of about 36 cents a case in the F.O.B. price. This relation is shown in absolute terms and more simply by the curve in panel B of figure 1.

(c) A change of 10 points in the adjusted index of prices of competing canned fruits, with domestic shipments and nonagricultural income held constant, was on the average accompanied by a change in the same direction of 22 cents a case in the F.O.B. price. This relation is shown by the diagonal line in panel C of figure 1.

Differences between the actual prices and those explained by the correlation analysis are given in table 4, column 3. The differences are plotted as deviations from the net regression lines in panels A, B, and C of figure 1.

For purposes of comparison and as a check on the analysis with price as the dependent variable, an analysis was also made in which quantity of domestic shipments was considered as the dependent variable. In such an analysis, emphasis is shifted from the major factors influencing the F.O.B. prices of canned clingstone peaches to the major factors influencing the volume of domestic shipments of canned peaches (clingstone plus freestone) by California canners. Total movement out of canners' hands minus United States exports is assumed to equal domestic shipments.

The average relations between domestic shipments of canned peaches by California canners and each of three variables (F.O.B. prices of canned clingstone peaches, index of nonagricultural income, and an adjusted index of competing canned fruit prices) were measured. In numerical terms, and as determined by equation No. 5, table 5, the average relations for the period under consideration are as follows:

The average relationships which prevailed from 1924-25 through 1947-48 (excluding 1941-42--1945-46) between the F.O.B. prices of canned clingstone peaches and three major factors were measured. The three factors are (1) total domestic shipments of California canned peaches, including both clingstones and freestones, (2) index of nonagricultural income in the United States, and (3) an adjusted index of prices of competing canned fruits.

Figure I shows graphically the average relations between the F.O.B. price and each of the independent variables, as determined by equation No. 4, table 5. Expressed in numerical terms, these average relations are as follows for the period of years under consideration:

(a) A change of one million cases in domestic shipments of canned peaches, with income and competing canned fruit prices held constant, was on the average accompanied by a change in the opposite direction of 14 cents a case in the F.O.B. price of canned clingstone peaches. This relation is shown by the diagonal line in panel A of figure I.

(b) A change of one-hundredth unit in the logarithm of the index of nonagricultural income in the United States, with domestic shipments and prices of competing canned fruits held constant, was on the average accompanied by a change in the same direction of 9 cents a case in the F.O.B. price. Expressed in other terms, a change of 10 per cent in the level of nonagricultural income in the United States, with domestic shipments and prices of competing fruits held constant, was on the average accompanied by a change in the same direction of about 36 cents a case in the F.O.B. price. This relation is shown in absolute terms and more simply by the curve in panel B of figure I.

(c) A change of 10 points in the adjusted index of prices of competing canned fruits, with domestic shipments and nonagricultural income held constant, was on the average accompanied by a change in the same direction of 25 cents a case in the F.O.B. price. This relation is shown by the diagonal line in panel C of figure I.

Differences between the actual prices and those explained by the correlation equation are given in table 4, column 3. The differences are plotted as deviations from the net regression lines in panels A, B, and C of figure I.

For purposes of comparison and as a check on the analysis with price as the dependent variable, an analysis was also made in which quantity of domestic shipments was considered as the dependent variable. In such an analysis, emphasis is shifted from the major factors influencing the F.O.B. prices of canned clingstone peaches to the major factors influencing the volume of domestic shipments of canned peaches (clingstone plus freestone) by California canners. Total movement out of canners' hands minus United States exports is assumed to equal domestic shipments.

The average relations between domestic shipments of canned peaches by California canners and each of three variables (F.O.B. prices of canned clingstone peaches, index of nonagricultural income, and an adjusted index of competing canned fruit prices) were measured. In numerical terms, and as determined by equation No. 5, table 5, the average relations for the period under consideration are as follows:

(a) A change of $1.00 a case in the F.O.B. price of canned clingstone peaches, with the nonagricultural income and prices of competing canned fruits held constant, was accompanied on the average by a change in the opposite direction of 3.86 million cases in the domestic shipments of canned peaches (clingstones plus freestones).

(b) A change of one-tenth unit in the logarithm of the index of nonagricultural income, with the F.O.B. price of canned clingstone peaches and prices of competing canned fruits held constant, was on the average accompanied by a change in the same direction of 3.9 million cases in the domestic shipments of canned peaches. Expressed in other terms, a change of 10 per cent in the level of nonagricultural income, with the F.O.B. price of canned clingstone peaches and prices of competing canned fruits held constant, was on the average accompanied by a change in the same direction of about 1.57 million cases in the domestic shipments of canned peaches.

(c) A change of 10 points in the adjusted index of prices of competing canned fruits, with the F.O.B. prices and nonagricultural income held constant, was on the average accompanied by a change in the same direction of 621 thousand cases in the domestic shipments of canned peaches.

Differences between actual domestic shipments and those reflecting the relations noted above are shown in table 4, column 6.

Of the various analyses made in the course of the study, the two summarized above appear to be the most acceptable from the combined viewpoints of economics, marketing and statistics. As additional postwar data and experience are accumulated, the evidence should become clearer and sharper concerning the relations of the prices and shipments to the major factors affecting them under postwar conditions.

(a) A change of $1.00 a case in the F.O.B. price of canned clingstone peaches, with the nonagricultural income and prices of competing canned fruits held constant, was accompanied on the average by a change in the opposite direction of 3.86 million cases in the domestic shipments of canned peaches (clingstones plus freestones).

(b) A change of one-tenth unit in the logarithm of the index of nonagricultural income, with the F.O.B. price of canned clingstone peaches and prices of competing canned fruits held constant, was on the average accompanied by a change in the same direction of 3.3 million cases in the domestic shipments of canned peaches. Expressed in other terms, a change of 10 per cent in the level of nonagricultural income, with the F.O.B. price of canned clingstone peaches and prices of competing canned fruits held constant, was on the average accompanied by a change in the same direction of about 1.67 million cases in the domestic shipments of canned peaches.

(c) A change of 10 points in the adjusted index of prices of competing canned fruits, with the F.O.B. prices and nonagricultural income held constant, was on the average accompanied by a change in the same direction of 651 thousand cases in the domestic shipments of canned peaches.

Differences between actual domestic shipments and those reflecting the relations noted above are shown in table 4, column 6.

Of the various analyses made in the course of the study, the two summarized above appear to be the most acceptable from the combined viewpoints of economics, marketing and statistics. As additional postwar data and experience are accumulated, the evidence should become clearer and sharper concerning the relations of the prices and shipments to the major factors affecting them under postwar conditions.

TABLE 1

Statistical Analysis of the Annual Average
F.O.B. Prices of Canned Clingstone Peaches
Variables Used in the Analysis

Year June through May	F.O.B. price canned clingstone peaches	Domestic shipments of California canned peaches	Index of nonagricultural income (1935-1939=100)	Adjusted index of prices of competing canned fruits (1935-1939=100)
	dollars per case	thousand cases	per cent	per cent
	1	2	3	4
1924-25	4.21	5,637	103.9	149.2
1925-26	3.78	8,511	112.7	124.2
1926-27	3.66	9,046	115.3	118.0
1927-28	3.17	11,163	116.2	125.6
1928-29	3.22	10,800	120.7	106.0
1929-30	4.08	7,845	120.2	117.3
1930-31	2.88	9,402	104.4	109.2
1931-32	2.55	6,058	85.5	102.9
1932-33	1.97	8,188	68.1	126.3
1933-34	2.31	7,480	75.5	124.5
1934-35	2.69	8,006	82.1	127.9
1935-36	2.51	8,726	91.0	109.9
1936-37	2.66	9,876	106.5	93.0
1937-38	2.96	7,531	103.3	101.6
1938-39	2.30	10,669	101.0	92.1
1939-40	2.44	9,551	109.6	93.1
1940-41	2.30	12,666	122.1	84.4
1946-47	4.87	16,880	264.4	66.6
1947-48a/	4.82	15,155	291.8	63.1

a/ Preliminary--subject to revision.

Sources of data:

Col. 1: Compiled from reports by canners. Prices are weighted average prices of canned clingstone peaches received by canners, F.O.B. cannery dock, for all grades and sizes of cans on an unadvertized basis. Regular brokerage, cash discount, swell allowance, label allowance, and case allowance are included.

Col. 2: Total shipments minus exports. Total shipments compiled by the Canners League of California and the Canning Peach Industry Board. Figures include both clingstones and freestones on a No. $2\frac{1}{2}$ basis. See table 2. Exports from U.S. Dept. of Commerce, Monthly Summary of Foreign Commerce of the United States.

Col. 3: Simple average of the pack-year monthly indices of national income, excluding agricultural income, 1935-1939 average equals 100. Index for May 1948 was assumed to be the same as for April 1948. Monthly income data compiled from U.S. Dept. of Commerce, Survey of Current Business. Unrevised figures used for months prior to June 1939 and revised income figures used for June 1939 and following months. The revised income data obtained from July 1947 Supplement to Survey of Current Business and later monthly issues.

Col. 4: For sources and method of construction see table 3.

TABLE I

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F.O.B. Prices of Canned Clingstone Peaches
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	1	2	3	4
1924-25	4.21	5,837	103.9	149.2
1925-26	3.78	8,311	112.7	124.2
1926-27	3.66	9,046	115.3	118.0
1927-28	3.17	11,183	116.2	126.6
1928-29	3.22	10,800	120.7	106.0
1929-30	4.08	7,845	120.2	117.3
1930-31	2.88	9,402	104.4	109.2
1931-32	2.68	6,058	85.5	102.9
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1933-34	2.31	7,480	75.5	124.5
1934-35	2.69	8,008	82.1	127.9
1935-36	2.51	8,728	91.0	109.3
1936-37	2.66	9,876	106.8	98.0
1937-38	2.96	7,832	109.3	101.6
1938-39	2.30	10,869	101.0	92.1
1939-40	2.44	9,582	109.8	98.1
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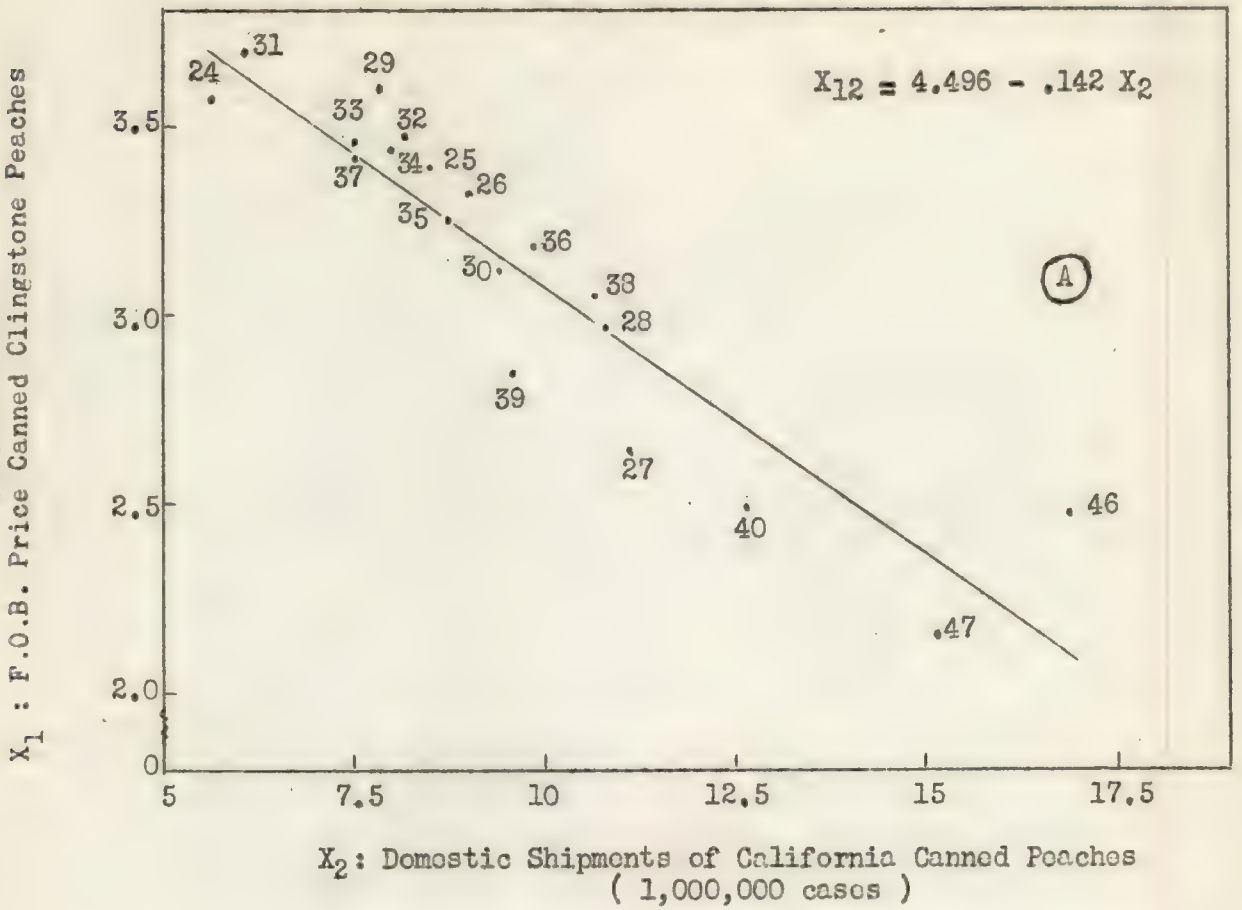
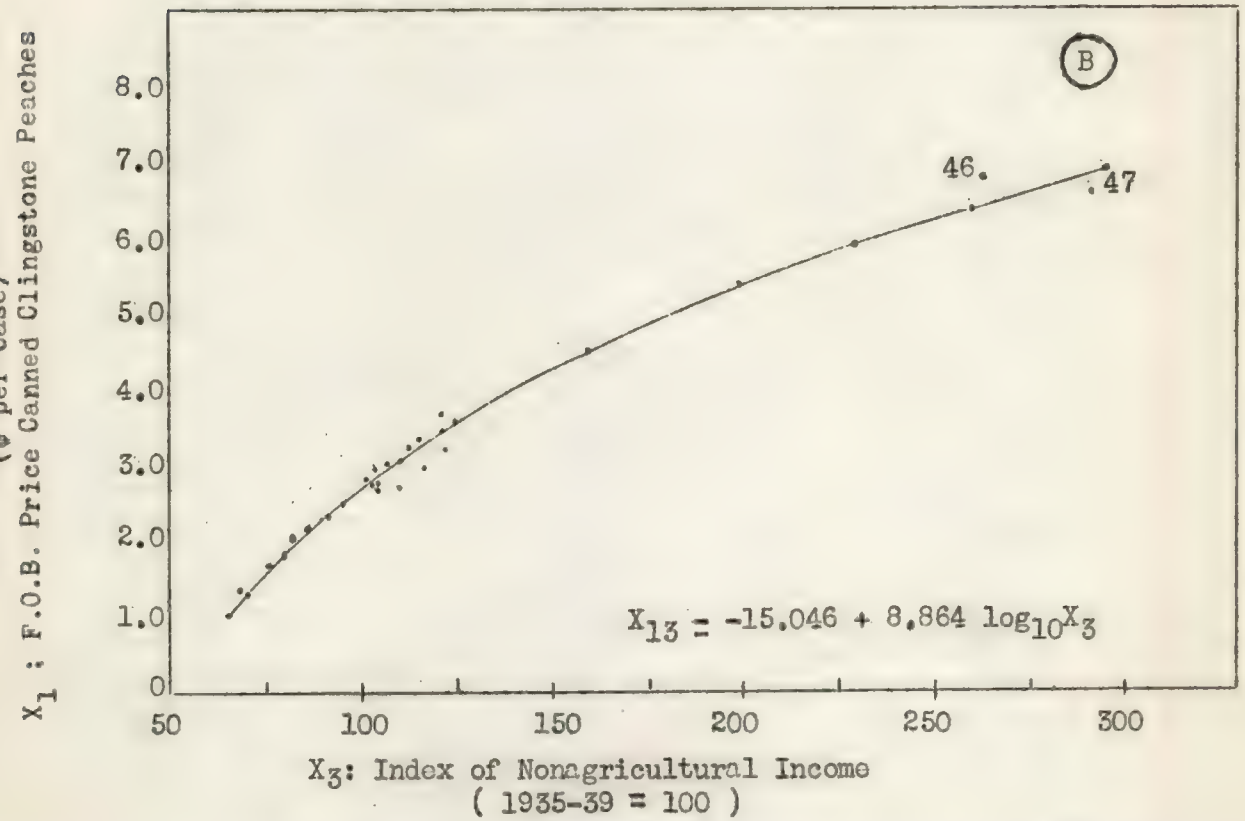
Col. 3: Simple average of the pack-year monthly indices of national income, excluding agricultural income, 1935-1939 average equals 100. Index for May 1948 was assumed to be the same as for April 1948. Monthly income data compiled from U.S. Dept. of Commerce, Survey of Current Business. Unrevised figures used for months prior to June 1939 and revised income figures used for June 1939 and following months. The revised income data obtained from July 1947 Supplement to Survey of Current Business and later monthly issues.

Col. 4: For sources and method of construction see table 3.

Figure 1.--California Canned Peaches: Average F.O.B. Prices Received by Canners Related to (A) Domestic Shipments of Canned Shipments, (B) Index of Nonagricultural Income, and (C) Adjusted Index of Prices of Competing Canned Fruits, 1924-25 through 1947-48 (excluding 1941-42--1945-46). (Based on equation No. 4, table 5)





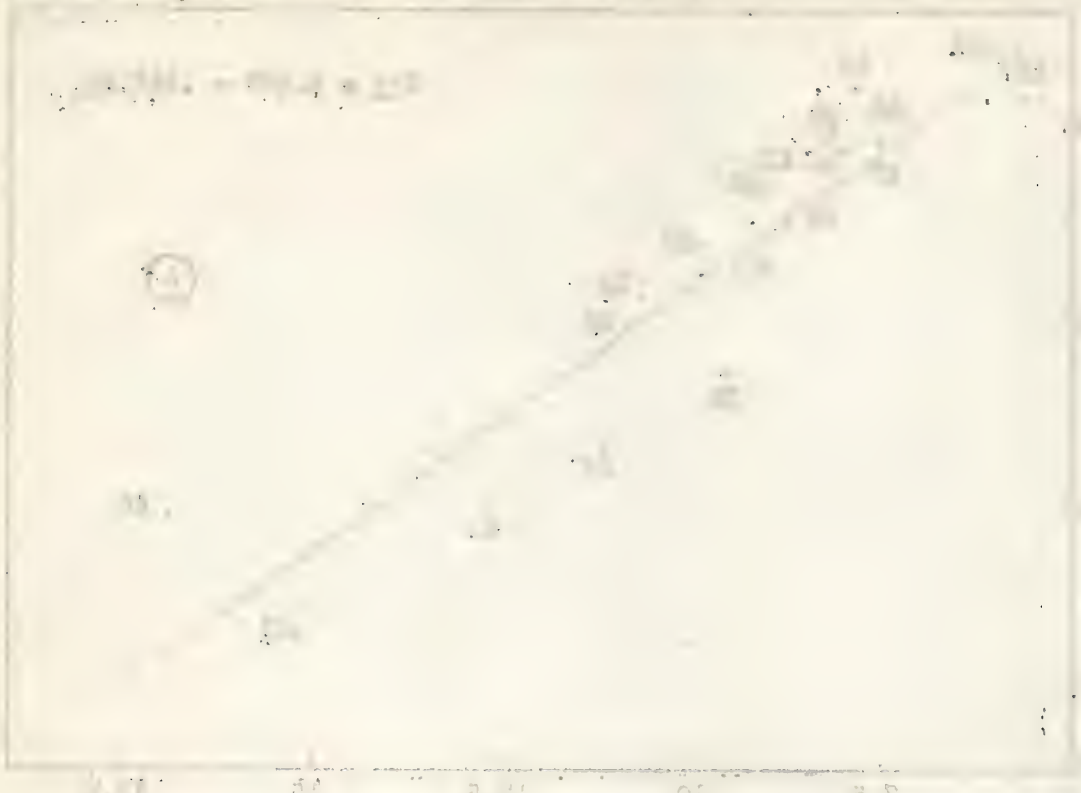
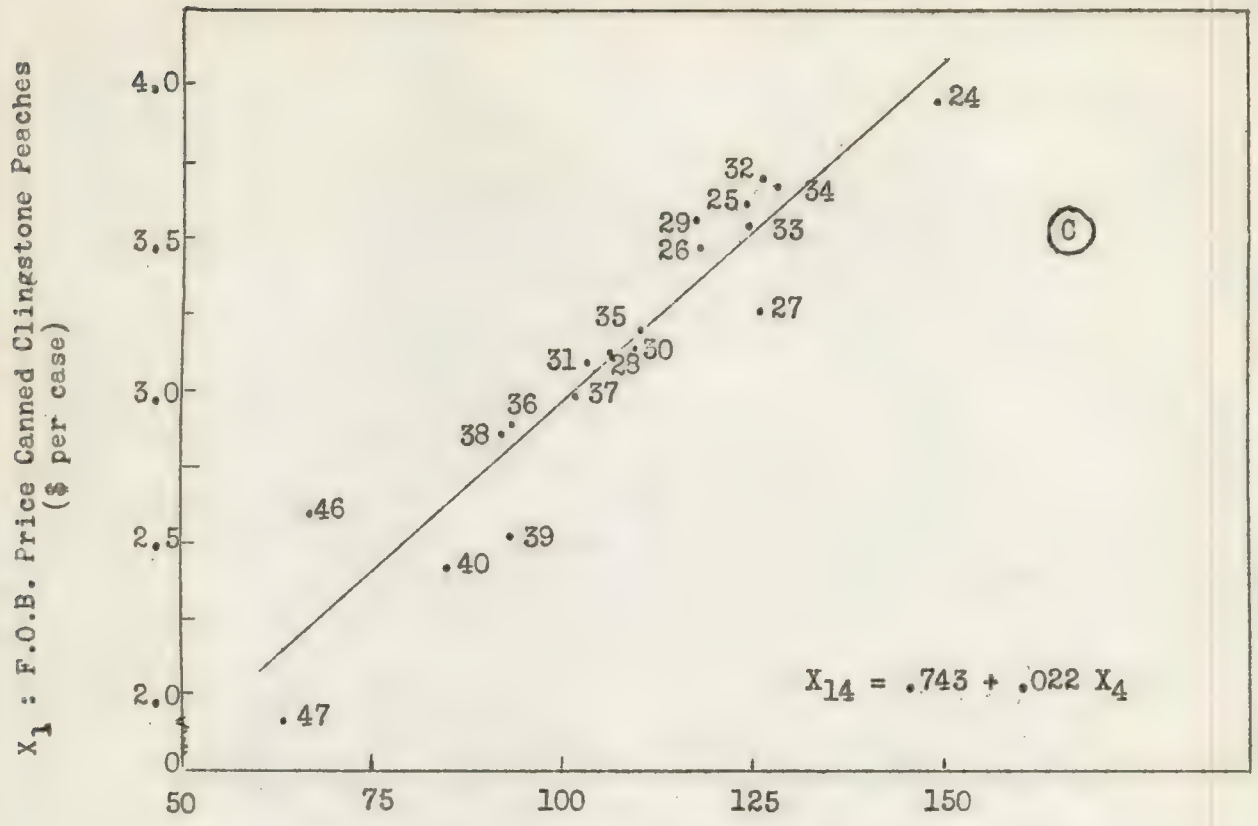


Figure 1 (continued)



X_4: Adjusted Index of Prices of Competing Canned Fruits
(1935-39 = 100)

TABLE 2

Shipments of California Canned Clingstone and Freestone Peaches and United States Exports of Canned Peaches

Year June through May	California			United States	California
	Canned clingstone shipments	Canned freestone shipments	Canned peach shipments	Exports	Domestic shipments of canned peaches
	thousand cases, No. 2½ basis				
	1	2	3	4	5
1924-25					5,637
1925-26					8,511
1926-27					9,046
1927-28	12,907	296	13,203	2,040	11,163
1928-29	12,652	310	12,962	2,162	10,800
1929-30	9,204	362	9,566	1,721	7,845
1930-31	10,881	145	11,026	1,624	9,402
1931-32	7,445	82	7,527	1,469	6,058
1932-33	9,881	40	9,921	1,733	8,188
1933-34	9,214	65	9,279	1,799	7,480
1934-35	8,811	321	9,132	1,126	8,006
1935-36	10,757	274	11,031	2,305	8,726
1936-37	10,667	518	11,185	1,309	9,876
1937-38	8,125	677	8,802	1,271	7,531
1938-39	12,287	542	12,829	2,160	10,669
1939-40	10,626	878	11,504	1,953	9,551
1940-41	11,520	1,233	12,753	87	12,666
1941-42	10,568	2,161	12,729		
1942-43	12,926	1,191	14,117		
1943-44	10,739	598	11,337		
1944-45	12,285	337	12,622		
1945-46	12,236	510	12,746		
1946-47	17,046	997	18,043	1,163	16,880
1947-48a/	14,518	1,291	15,809	654	15,155

a/ Preliminary--subject to revision.

Sources of data:

Cols. 1 and 2: Compiled by the Canners League of California and the Canning Peach Industry Board.

Col. 3 : Col. 1 plus col. 2.

Col. 4 : United States Department of Commerce, Monthly Summary of Foreign Commerce of the United States. May 1948 exports estimated.

Col. 5 : Col. 3 minus col. 4.

TABLE 3

Construction of Index of Prices of Canned Fruits Competing with Canned Peaches

Year June through May	Prices			Relatives of prices			Indexes		
	Canned Bartlett pears	Canned apricots	Canned pineapples	Canned Bartlett pears	Canned apricots	Canned pineapples	Unadjusted index of competing canned fruit prices	Index of nonagricultural income	Adjusted index of competing canned fruit prices
	dollars per case	dollars per case	dollars per doz. cans	1935-1939=100			1935-1939=100		
	1	2	3	4	5	6	7	8	9
1924-25	5.40	3.91	2.65	180.6	139.4	147.2	155	103.9	149.2
1925-26	5.44	3.72	2.20	181.9	132.7	122.2	140	112.7	124.2
1926-27	4.31	3.85	2.35	144.1	137.3	130.6	136	115.3	118.0
1927-28	4.60	3.97	2.60	153.8	141.6	144.4	146	116.2	125.6
1928-29	4.13	3.67	2.20	138.1	130.9	122.2	128	120.7	106.0
1929-30	4.82	3.97	2.35	161.2	141.6	130.6	141	120.2	117.3
1930-31	3.53	3.32	2.00	118.1	118.4	111.1	114	104.4	109.2
1931-32	2.82	2.64	1.50	94.3	94.2	83.3	88	85.5	102.9
1932-33	2.48	2.23	1.60	82.9	79.5	88.9	86	68.1	126.3
1933-34	2.64	2.37	1.80	88.3	84.5	100.0	94	75.5	124.5
1934-35	3.05	3.47	1.80	102.0	123.8	100.0	105	82.1	127.9
1935-36	2.92	2.93	1.80	97.7	104.5	100.0	100	91.0	109.9
1936-37	2.92	2.75	1.80	97.7	98.1	100.0	99	106.5	93.0
1937-38	3.07	3.02	1.90	102.7	107.7	105.6	105	103.3	101.6
1938-39	2.77	2.55	1.70	92.6	90.9	94.4	93	101.0	92.1
1939-40	3.27	2.77	1.80	109.4	98.8	100.0	102	109.6	93.1
1940-41	3.06	3.23	1.80	102.3	115.2	100.0	103	122.1	84.4
1941-42	3.75	3.19	1.90	125.4	113.8	105.6	112		
1946-47	7.24	5.09	2.55	242.1	181.5	141.7	176	264.4	66.6
1947-48[a/]	7.25	5.33	2.75	242.5	190.1	152.8	184	291.8	63.1

(Continued on next page)

TABLE 3

Table 3 continued.

a/ Preliminary--subject to revision.

Sources of data:

Cols. 1 and 2: Compiled from records of canners. Prices are weighted average prices for all grades and sizes of cans, F.O.B. cannery. Canned Bartlett pear prices up to and including 1940-41 are for the Pacific Coast; 1946-47 and 1947-48 are for California canners. Canned apricot prices are for California.

Col. 3 : Opening prices for No. 2½ sliced fancy pineapple, Hawaii, as given in Western Canner and Packer, 1937 Yearbook, p. 85. 1937-38 and later prices from California Fruit News, weekly issues.

Cols.4,5 and 6: Prices given in cols. 1, 2 and 3 in per cent of their 1935-1939 averages--canned Bartlett pears, $2.990; canned apricots $2.804; canned pineapples, $1.80.

Col. 7 : Weighted combination of relatives given in cols. 4, 5, and 6, using following weights: canned Bartlett pears, 3; canned apricots, 2; canned pineapples, 6.

Col. 8 : From table 1, col. 3.

Col. 9: : Col. 7 as per cent of col. 8.

Table 3 continued.

TABLE 4

Actual and Estimated F.O.B. Prices and Domestic Shipments of California Canned Peaches, 1924-25 to 1947-48 (Excluding 1941-42 through 1945-46)

Year June through May	Prices as dependent variable			Domestic shipments as dependent variable		
	Actual price	Estimated price	Col.1 minus col. 2	Actual shipments	Estimated shipments	Col.4 minus col. 5
	dollars per case			thousand cases		
	1	2	3	4	5	6
1924-25	4.21	4.33	-0.12	5,637	6,767	-1,130
1925-26	3.78	3.68	+0.10	8,511	8,244	- 267
1926-27	3.66	3.56	+0.10	9,046	8,706	+ 340
1927-28	3.17	3.45	-0.28	11,163	11,204	- 41
1928-29	3.22	3.21	+0.01	10,800	10,432	+ 368
1929-30	4.08	3.87	+0.21	7,845	7,741	+ 104
1930-31	2.88	2.93	-0.05	9,402	9,503	- 101
1931-32	2.55	2.49	+0.06	6,058	7,027	- 969
1932-33	1.97	1.84	+0.13	8,188	6,889	+1,299
1933-34	2.31	2.29	+0.02	7,480	7,200	+ 280
1934-35	2.69	2.62	+0.07	8,006	7,353	+ 653
1935-36	2.51	2.51	0.00	8,726	8,663	+ 63
1936-37	2.66	2.58	+0.08	9,876	9,680	+ 196
1937-38	2.96	2.98	-0.02	7,531	8,544	-1,013
1938-39	2.30	2.24	+0.06	10,669	10,124	+ 544
1939-40	2.44	2.74	-0.30	9,551	11,022	-1,471
1940-41	2.30	2.51	-0.21	12,666	12,840	- 174
1946-47	4.87	4.49	+0.38	16,880	14,809	+2,071
1947-48a/	4.82	5.04	-0.22	15,155	16,444	-1,289

a/ Preliminary--subject to revision.

Sources of data:
Col. 1: Col. 1, table 1.
Col. 2: Estimated by equation 4, table 5.
Col. 3: Col. 1 minus col. 2.
Col. 4: Col. 2, table 5.
Col. 5: Estimated by equation 5, table 5.
Col. 6: Col. 4 minus col. 5.

TABLE 4

Actual and Estimated F.O.B. Prices and Domestic Shipments
of California Canned Peaches, 1924-25 to 1947-48
(Excluding 1941-42 through 1945-46)

Year June through May	Prices as dependent variable			Domestic shipments as dependent variable		
	Actual price	Estimated price	Col.1 minus col. 2	Actual shipments	Estimated shipments	Col.4 minus col. 5
	dollars per case			thousand cases		
	1	2	3	4	5	6
1924-25	4.21	4.33	-0.12	5,637	6,767	-1,130
1925-26	3.78	3.68	+0.10	8,311	8,264	+ 267
1926-27	3.66	3.56	+0.10	9,046	8,706	+ 340
1927-28	3.17	3.45	-0.28	11,163	11,204	- 41
1928-29	3.22	3.21	+0.01	10,800	10,432	+ 368
1929-30	4.08	3.87	+0.21	7,846	7,741	+ 104
1930-31	2.88	2.93	-0.05	9,402	9,503	- 101
1931-32	2.55	2.49	+0.06	6,058	7,027	- 969
1932-33	1.97	1.84	+0.13	8,188	6,889	+1,299
1933-34	2.31	2.29	+0.02	7,480	7,200	+ 280
1934-35	2.69	2.62	+0.07	8,006	7,353	+ 653
1935-36	2.51	2.51	0.00	8,726	8,663	+ 63
1936-37	2.68	2.58	+0.08	9,876	9,680	+ 196
1937-38	2.96	2.98	-0.02	7,531	8,544	-1,013
1938-39	2.30	2.24	+0.06	10,669	10,124	+ 544
1939-40	2.44	2.74	-0.30	9,551	11,022	-1,471
1940-41	2.30	2.51	-0.21	12,666	12,840	- 174
1946-47	4.87	4.49	+0.38	16,880	14,809	+2,071
1947-48a/	4.82	5.04	-0.22	15,155	16,444	-1,289

a/ Preliminary--subject to revision.

Sources of data:
Col. 1: Col. 7, table 1.
Col. 2: Estimated by equation 4, table 5.
Col. 3: Col. 1 minus col. 2.
Col. 4: Col. 2, table 5.
Col. 5: Estimated by equation 5, table 5.
Col. 6: Col. 4 minus col. 5.

TABLE 5

Canned Clingstone Peaches
Regression Coefficients and Auxiliary Constants for
Multiple Regression Analyses Covering 1924-25 through 1947-48
(Excluding 1941-42 through 1945-46)

Equation number	Dependent variable	Constant term	Net regression coefficients[a] (figures in parentheses are t-ratios)						Adjusted coefficient of multiple correlation $\bar{R}$
			X_1	X_2	X_3	$(X_3)^2$	$\log_{10}(X_3)$	X_4	
1	2	3	4	5	6	7	8	9	10
1	X_1	-0.95044		-0.11692 (2.03894)	+0.02272 (9.25726)			+0.02297 (3.90117)	0.9282
2	X_1	-2.95430		-0.164106 (5.53488)	+0.05798 (10.78629)	-0.09177 (6.73955)		+0.02138 (7.20292)	0.9824
3	X_2	-9.54139	-4.18233 (5.53488)		+0.26352 (6.05506)	+0.41785 (4.79715)		+0.07325 (2.82398)	0.9568
4	X_1	-16.05793		-0.14220 (4.27835)			+8.86376 (16.99875)	+0.02225 (6.58501)	0.9768
5	X_2	-64.39531	-3.86496 (4.27835)				+38.76011 (7.04213)	+0.06213 (2.01607)	0.9390

a/ X_1 = the annual average F.O.B. price of canned clingstone peaches (in dollars per case).
X_2 = the domestic shipments of California canned peaches, including both clingstones and freestones (in units of 1,000,000 cases).
X_3 = the index of nonagricultural income in the United States, 1935-1939=100 (in percentage points).
X_4 = the adjusted index of prices of competing canned fruits, 1935-1939=100 (in percentage points).

TABLE 5

Canned Clintstone Beagles

Regression Coefficients and Auxiliary Constants for

Multiple Regression Analysis Covering Base-33 Cycles 1951-83

(Excluding 1961-63 Cycles 58-60)

Independent Variables	Regression Coefficients (figures in parentheses are t-ratios)								Multiple Correlation R
	X_A	$\log_{10}(X_B)$	$(X_C)^5$	X_D	X_E	X_F	X_G	X_H	
	01	02	03	04	05	06	07	08	
Constant term	.0556	1.5249E+0 (7.0410)	1.1067E+01 (1.4540)						.9956
Dependent Variable	.8379	-2.2992E+0 (-1.0282)	-3.8738E+0 (-2.8878)						.9976
Monetary Aggregate	.8356	-2.2270E+0 (-8.8658)	-3.5283E+0 (-3.4025)						.9988
Interest Rate	.4596	-1.6152E+0 (-5.9505)	-1.8750E+0 (-3.8843)						.9995
Unemployment	.4585	-1.6450E+0 (-7.1108)	-3.5721E+0 (-4.0820)						.9995

χ_A = the adjusted index of prices of competing canned tinfits, 1951-1983=100 (in percentage points).

χ_B = the index of nonexistent income in the United States, 1951-1983=100 (in percentage points).

χ_C = the number of canned clintstone beagles (in pairs) per cage).

χ_D = the annual average G.N.P. rate of canned clintstone beagles (in billions and tenths of dollars).

χ_E = the geometric arithmetic of collectible canned beagles, including pop culture and treasures (in units of 1,000,000 cases).

χ_F = the index of nonexistent income in the United States, 1951-1983=100 (in percentage points).

χ_G = the adjusted index of prices of competing canned tinfits, 1951-1983=100 (in percentage points).